



DRUID Working Paper No. 06-9

Original and Derived Judgment:  
An Entrepreneurial Theory of Economic Organization

By

Kirsten Foss, Nicolai J. Foss and Peter G. Klein

**Danish Research Unit for Industrial Dynamics**

[www.druid.dk](http://www.druid.dk)



## **Original and Derived Judgment: An Entrepreneurial Theory of Economic Organization**

**Kirsten Foss**

Center for Strategic Management and Globalization  
Copenhagen Business School  
Porcelainshaven 24  
2000 Frederiksberg, Denmark  
E-mail: [kf.smg@cbs.dk](mailto:kf.smg@cbs.dk)

**Nicolai J. Foss**

Center for Strategic Management and Globalization  
Copenhagen Business School  
Porcelainshaven 24  
2000 Frederiksberg, Denmark  
E-mail: [njf.smg@cbs.dk](mailto:njf.smg@cbs.dk)

**Peter G. Klein**

Contracting and Organizations Research Institute  
University of Missouri  
135 Mumford Hall  
Columbia, MO 65211 USA  
E-mail: [kleinp@missouri.edu](mailto:kleinp@missouri.edu)

30 April 2006

### **Abstract:**

Recent work links entrepreneurship to the economic theory of firm using the Knightian concept of entrepreneurship as judgment. When judgment is complementary to other assets, and these assets or their services are traded in well-functioning markets, it makes sense for entrepreneurs to hire labor and own assets. The entrepreneur's role, then, is to arrange or organize the human and capital assets under his control. We extend this Knightian concept of the firm by developing a theory of delegation under Knightian uncertainty. What we call *original judgment* belongs exclusively to owners, but owners may delegate a wide range of decision rights to subordinates, who exercise *derived judgment*. We call these employees "proxy-entrepreneurs," and ask how the firm's organizational structure — its formal and informal systems of rewards and punishments, rules for settling disputes and renegotiating agreements, means of evaluating performance, and so on — can be designed to encourage forms of proxy-entrepreneurship that increase firm value while discouraging actions that destroy value. Building on key ideas from the



entrepreneurship literature, Austrian economics, and the economic theory of the firm we develop a framework for analyzing the tradeoff between productive and destructive proxy-entrepreneurship. We link this analysis to the employment relation and ownership structure, providing new insights into these and related issues in the economic theory of the firm.

**Key words:** Judgment, entrepreneur, delegation, employment relation, ownership.

**JEL Codes:** B53, D23, L2

**ISBN 87-7873-199-2**

## 1. Introduction

Modern firms are increasingly encouraging entrepreneurship at all levels of the organization (e.g., Day and Wendler, 1998; Yonekura and Lynskey, 2002). To foster entrepreneurial attitudes and behavior managers must give significant discretion to employees. Delegated rights can, however, be used in both beneficial and harmful ways, presenting managers with a tradeoff between encouraging beneficial entrepreneurship and facilitating harmful entrepreneurship inside the firm. Building on key ideas from the economics of entrepreneurship (Knight, 1921; Casson, 1982), Austrian economics (e.g., Hayek, 1945; Mises, 1949; Kirzner, 1973) and the theory of the firm (Coase, 1937; Holmström, 1979; Hart, 1995; Williamson, 1996), we develop a framework for analyzing this tradeoff. We link this analysis to issues of the employment relation and asset ownership, arguing that our entrepreneurial perspective provides a fresh look on these classical issues in the economic theory of the firm.

We begin with recent work linking entrepreneurship to the economic theory of the firm using the Knightian concept of entrepreneurship as judgment (Casson, 1982; Foss, 1993; Langlois and Cosgel, 1993; Foss and Klein, 2005). The foundation of this approach is the proposition that entrepreneurial judgment is costly to trade, an idea originally suggested by Knight (1921). When judgment is complementary to other assets, and these assets or their services are traded in well-functioning markets, it makes sense for entrepreneurs to hire labor and own assets. The entrepreneur's role, then, is to arrange or organize the human and capital assets under his control. This role becomes particularly important in a dynamic economy where agents face unforeseen changes so that sequential decision-making, such as revising business plans that embody entrepreneurial judgment, is necessary (Coase, 1937; Hayek, 1945; Williamson, 1996). Asset ownership plays a critical role in facilitating the entrepreneurial revision of such plans. Thus, the exercise of entrepreneurship is closely tied to resource ownership and the employment relation, providing a rationale for the existence of the firm.

The claim that entrepreneurial judgment is manifested in ownership is straightforward for small firms with one or few owners. It is harder to see the entrepreneurial element in ownership within large, complex organizations with fragmented ownership and decentralized decision mak-

ing.<sup>1</sup> We argue that a type of Knightian entrepreneurship — what we term *original judgment* — is inseparable from resource ownership, and is exercised by owners even if they delegate most day-to-day decisions to subordinates. In firms with decentralized organizational structures, employees have considerable latitude, but as non-owners, their discretion is limited. In our framework, employees holding decision authority can be described as “proxy entrepreneurs,” exercising delegated or *derived judgment* on behalf of their employers. Such employees are expected not to carry out routine instructions in a mechanical, passive way, but to apply their own judgment to new circumstances or situations that may be unknown to the employer. This type of arrangement is typically seen in the management literature as a form of empowerment, encouraging employees to utilize the knowledge best known to them and giving them strong incentives to do so (e.g., Hill and Amabile, 1993; Osterloh and Frey, 2000; Gagné and Deci, 2005). Such discretion is ultimately limited, because owners retain the rights to hire and fire employees and to acquire or dispose of complementary capital goods.<sup>2</sup>

The precise manner in which employees’ discretion is limited is given by the firm’s organizational structure — its formal and informal systems of rewards and punishments, rules for settling disputes and renegotiating agreements, means of evaluating performance, and so on. Under some organizational structures, the employment relation is highly constrained, giving employees few opportunities to engage in proxy-entrepreneurship. In other firms the employment relation may be much more open. Granting such latitude to employees brings benefits and costs. As agents become less constrained, they are likely to engage in both “productive” proxy-entrepreneurship — activities that increase joint surplus — and “destructive” proxy-entrepreneurship, meaning activities that reduce joint surplus. One important function of contracts and organizational design is to balance productive and destructive proxy-entrepreneurship by selecting and enforcing the proper contractual constraints. The optimal organizational structure, in the Knightian perspec-

---

<sup>1</sup> While much of the modern entrepreneurship literature focuses on startups and sole proprietorships, it is striking that none of the major contributions to the economic theory of entrepreneurship — those of Schumpeter, Knight, Mises, Kirzner, and others — dealt specifically with small or new firms.

<sup>2</sup> To state the problem differently: decentralized decision rights and incentive compensation approximate the high-powered incentives of private property and the price mechanism, but not perfectly (Foss, 2003). De facto discretion is not a perfect substitute for de jure discretion. We thus stand with Coase (1937), Williamson (1985, 1996), and Hart (1995) and against Alchian and Demsetz (1972) and Jensen and Meckling (1976) in seeing firm and market as alternative mechanisms for resource allocation, rather than simply different sets of contractual relations.

tive, is one that encourages employees to use derived judgment in ways that increase firm value while discouraging unproductive rent-seeking, influence activities, and other forms of proxy-entrepreneurship that destroy value. The allocation of ownership rights and the characteristics of the employment relation thus matter for the efficient exercise of judgment. While not at variance with established approaches to the economic theory of the firm (e.g., Holmström, 1979; Hart, 1995; Williamson, 1996), our approach goes beyond this literature.

The paper proceeds as follows. We begin by outlining the judgment approach to entrepreneurship, linking it to resource ownership, and distinguishing between original and derived forms of judgment. Next we model, by means of a simple graphical example, the tradeoffs between destructive and productive derived judgment. We argue that ownership of assets is a means for an entrepreneur holding original judgment to implement his preferred extent of derived judgment in the firm. The overall contribution of this paper is show how the notion of entrepreneurship as judgment enriches the theory of economic organization. The Knightian approach to entrepreneurship, we argue, complements traditional approaches to the modern economic theory of the firm (i.e., moral hazard, the holdup problem) (Holmström, 1979; Hart, 1995; Williamson, 1996; Kim and Mahoney, 2005).

## **2. Judgment and Delegation**

### ***2.1. Entrepreneurship as Judgment***

Foss and Klein (2005) show how the theory of entrepreneurship and the theory of the firm can be linked using the concept of entrepreneurship as judgment. This view traces its origins to the first systematic treatment of entrepreneurship in economics, Richard Cantillon's *Essai sur la nature de commerce en général* (1755). It conceives entrepreneurship as judgmental decision-making under conditions of uncertainty. Judgment refers primarily to business decision-making when the range of possible future outcomes, let alone the likelihood of individual outcomes, is generally unknown (what Knight terms uncertainty, rather than mere probabilistic risk). More generally, judgment is required "when no obviously correct model or decision rule is available or when relevant data is unreliable or incomplete" (Casson, 1993).

As such, judgment is distinct from boldness, daring, or imagination (Begley and Boyd, 1987; Chandler and Jansen, 1992; Aldrich and Wiedenmayer, 1993; Hood and Young, 1993; Lumpkin and Dess, 1996), innovation (Schumpeter, 1911), alertness (Kirzner, 1973), leadership (Witt, 1998a, 1998b), and other concepts of entrepreneurship that appear in the economics and management literatures. Judgment must be exercised in mundane circumstances, as Knight (1921) emphasized, for ongoing operations as well as new ventures. Alertness is the ability to react to *existing* opportunities, while judgment refers to the creation of *new* opportunities.<sup>3</sup> Those who specialize in judgmental decision-making may be dynamic, charismatic leaders, but they need not possess these traits. In short, decision making under uncertainty is entrepreneurial, whether it involves imagination, creativity, leadership, and related factors or not.

Knight (1921) introduces judgment to link profit and the firm to uncertainty. Judgment primarily refers to the process of businessmen forming estimates of future events in situations in which the relevant probability distributions are themselves unknown.<sup>4</sup> Entrepreneurship represents a particular form of judgment, one that cannot be assessed in terms of its marginal product and which cannot, accordingly, be paid a wage (Knight 1921: 311). Various reasons for this asserted non-contractibility are given in the literature. The “decisive factors,” Knight argues, “are so largely on the inside of the person making the decision that the ‘instances’ are not amenable to objective description and external control” (Knight, 1921: 251). Kirzner (1979: 181) argues that “entrepreneurship reveals to the market what the market did not realize was available, or indeed, needed at all.” Casson (1982: 14) takes a more Schumpeterian position, arguing that “[t]he entrepreneur believes he is right, while everyone else is wrong. Thus the essence of entrepreneurship is being different — being different because one has a different perception of the situation” (see also Casson, 1997; Demsetz, 1988). The implication of these arguments is that there is no market for the judgment that entrepreneurs rely on, and therefore exercising judgment requires the per-

---

<sup>3</sup> In the treatment of Austrian economist Israel Kirzner, entrepreneurship is characterized as “a *responding* agency. I view the entrepreneur not as a source of innovative ideas *ex nihilo*, but as being *alert* to the opportunities that exist *already* and are waiting to be noticed” (Kirzner, 1973: 74).

<sup>4</sup> There is a long debate on whether Knightian uncertainty is meaningful, or whether “uncertainty” is simply highly subjective, and therefore not insurable, risks (e.g., Demsetz, 1988). We are agnostic on this issue, which does not seem to matter for our argument. Relatedly, it may be discussed whether Knightian uncertainty includes ignorance in the sense of unforeseen contingencies (Shackle, 1972; Littlechild, 1986; Williamson, 1996). Unforeseen contingencies are important in our framework.

son with judgment to start a firm. Of course, entrepreneurs can hire consultants, forecasters, technical experts, and so on. However, in doing so they are exercising their own entrepreneurial judgment about whom to hire.

## ***2.2. Original and Derived Judgment***

Original judgment refers to the entrepreneurial formation and execution of a business idea. The idea may be anything from a loose, overall concept of how to combine inputs into outputs to a carefully specified, detailed business plan. A business plan involves the identification and coordination of inputs and activities designed to make the business profitable. If the plan is highly detailed, the entrepreneur may delegate parts of its implementation to agents. However, in this case the entrepreneur will limit the employees' entrepreneurial behavior as the essential actions to be taken are already laid out in the plan. If the entrepreneur recognizes a need for ongoing adjustment of the business plan, and wishes to take advantage of specific knowledge he himself does not possess, he will delegate the right to exercise derived judgment to employees.<sup>5</sup>

The hierarchy of delegation may be deep and nested. Owners may choose to exercise original judgment directly, in the day-to-day management of assets, or to delegate some or all proximate decision rights to subordinates. Owners may be represented by a board of directors that decides which decision rights to delegate to managers, who exercise derived judgment over resource uses (and try to communicate such judgments to the board). Managers may then further delegate their own derived judgment rights to lower-level employees. As Knight (1921) argued, corporate governance is a nested hierarchy of judgment. In an important sense, however, original judgment remains with the owner, because as a minimum, even the most "passive" owners must choose someone to manage the asset. As Rothbard (1962: 538) puts it:

Hired managers may successfully direct production or choose production processes. But the ultimate responsibility and control of production rests inevitably with the owner, with the businessman whose property the product is until it is sold. It is the owners who make the decision concerning how much capital to invest and in what particular processes. And particularly, it is the owners who must choose the managers. The ultimate decisions concerning the use of their property

---

<sup>5</sup> Note that the notion of "derived judgment" does not imply a subordinate position in economic or legal significance; the notions of original and derived judgment are hierarchical (and temporal).



and the choice of the men to manage it must therefore be made by the owners and by no one else.<sup>6</sup>

The claim that owners make the “ultimate” decisions about resource use does not imply that owners supply the complete *content* of the firm’s entrepreneurial plans. Instead, the owners, or the board of directors on behalf of the owners, may rely on plans and proposals developed by hired managers or outside consultants. In this situation, the board’s judgment consists of deciding whether to commit resources to implement the business plan presented by the manager or consultant. In Fama and Jensen’s (1983) terminology, owners exercise *decision control* while delegating *decision management* to non-owners.

In large, complex organizations, judgment is delegated across many levels. As the success of the business plan likely depends on the actions of top managers, the board delegates considerable discretion to them. These managers in turn delegate discretion to their own subordinates, and so on throughout the organization. Thus, all levels below the owners exercise judgment that is derived from the original judgment of the owners. For ease of exposition, in the following we focus on a simple model of a single entrepreneur-owner holding original judgment and an employee who can exercise derived judgment. This employee exercises derived judgment in the sense that he the entrepreneur delegates discretion to him but constrains his entrepreneurial activities, where the relevant constraints are derived from the original business plan and relate to, for example, the type of activities and the means of coordination described in that plan.

### **3. Derived Entrepreneurship: Productive and Destructive**

#### ***3.1. The Productive/Destructive Distinction***

In most of the entrepreneurship literature, both in economics and in management, there is a general, though usually implicit claim that all entrepreneurial activity is socially beneficial (e.g.,

---

<sup>6</sup> Kirzner (1973: 68) argues similarly that entrepreneurial alertness cannot be fully delegated: “It is true that ‘alertness’ . . . may be hired; but one who hires an employee alert to possibilities of discovering knowledge has himself displayed alertness of a still higher order. . . . The entrepreneurial decision to hire is thus the ultimate hiring decision, responsible in the last resort for all factors that are directly or indirectly hired for his project.” Kirzner goes on to quote Knight (1921: 291): “What we call ‘control’ consists mainly of selecting some one else to do the ‘controlling.’” Unlike Knightian judgment, however, Kirznerian alertness can be exercised without asset ownership. For more on the contrast between Knight and Kirzner, see Foss and Klein (2005).

Mises, 1949; Kirzner, 1973; Yonekura and Lynskey, 2002; Shane, 2003). However, as Baumol (1990) pointed out, entrepreneurship may be socially harmful if it takes the form of rent-seeking, attempts to influence governments or management to redistribute income in a way that consumes resources and brings about a social loss. It is therefore necessary to introduce a distinction between productive and destructive entrepreneurship. This distinction applies in principle to both original and derived entrepreneurship. However, in the following we only consider the distinction in the context of derived entrepreneurship.

For employees to exercise derived judgment they must have some discretion. When employees use their discretion to expend effort creating or discovering new attributes and taking control over these in such a way that value creation is reduced, we shall speak of “destructive entrepreneurship.” Thus, discovering new forms of moral hazard (Holmström, 1979), creating holdups (Williamson, 1996), and inventing new ways of engaging in rent-seeking activities (Baumol, 1990) are examples of destructive entrepreneurship. “Productive entrepreneurship” refers to the creation or discovery of new attributes that lead to an increase in value creation. For example, a franchisee may discover new local tastes that in turn may form the basis for new products for the entire chain; an employee may figure out better uses of production assets and communicate this to the TQM team of which he is a member; etc. In the following we use this distinction to sketch an entrepreneurial approach to internal organization.

As described above, we assume that employees, while not exercising the original judgment, exercise derived judgment through decision rights that are delegated to them. As proxy entrepreneurs, they make decisions about the use of resources owned by others.<sup>7</sup> These decisions may be value-creating (productive) or value-destroying (destructive). Although original judgment cannot be assigned a marginal product, owners can form expectations about the costs and benefits of employees’ derived judgments.

---

<sup>7</sup> Of course, to the extent that the proxy entrepreneur’s decisions affect the value of his own personal reputation, human capital, and so on, he is acting as an entrepreneur-owner, exercising original judgment with regard to these intangible, personal assets.

### 3.2. *Managing Derived Judgment*

Many firms operate on the presumption that beneficial effects can be produced by giving them more rights to work with company assets, monitoring employees less, trusting them more. We shall use the terminology that this is a matter of “reducing constraints on employees” in various dimensions. For example, firms such as 3M allocate time to research employees that they are basically free to use however they wish in the hope that this will produce serendipitous discoveries. Many consulting firms have adopted similar practices. Industrial firms have long known that employees with many decision rights — researchers, for example — must be monitored and constrained in different, and typically much looser, ways than those employees charged only with routine tasks. More broadly, the increasing emphasis on “empowerment” during recent decades reflects a recognition that employees derive a benefit from controlling aspects of their job situation (Osterloh and Frey, 2000; Gagné and Deci, 2005). The total quality movement emphasizes that delegating various rights to employees motivates them to find new ways to increase the mean and reduce the variance of quality (Jensen and Wruck, 1994). To the extent that such activities increase created value, they represent productive entrepreneurship.<sup>8</sup>

Stimulating the productive creation and discovery of new asset attributes by reducing constraints on employees results in principal-agent relationships that are more open-ended because agents get opportunities to exercise their own, often far-reaching, judgments. However, reducing the constraints that agents face introduces potentially destructive proxy entrepreneurship. Managing the tradeoff between productive and destructive proxy entrepreneurship thus becomes a critical management task.

How can firms reduce the chance that derived judgment will be exercised in ways that are detrimental to the firm? In other words, how can destructive proxy entrepreneurship be mini-

---

<sup>8</sup> Our notion of “more constrained” and “less constrained” employment relations includes, but is broader than, the notion of contractual completeness in the transaction cost literature (e.g., Crocker and Masten, 1991; Crocker and Reynolds, 1993; Saussier, 2000). Crocker and Reynolds (1993) define completeness as the probability that a contingency not covered by prior contractual agreement arises. Under Knightian uncertainty, all contracts are incomplete, meaning that it is impossible to specify all contingencies *ex ante*. The firm’s organizational structure, governing the employment relation more broadly, can constrain employee opportunism even when formal contracts are highly incomplete in the Crocker and Reynolds sense.

mized? Firms may delimit employees' use of assets, such as telephone and internet, by specifying their use rights over the relevant assets, instructing them to act in a proper manner towards customers, to exercise care when operating the firm's equipment, and the like. However, firms are unlikely to succeed entirely in their attempt to curb such activities. Monitoring employees may be costly; moreover, employees may creatively circumvent constraints, for example by inventing ways to hide their behavior. Although firms may know that such destructive entrepreneurship takes place, they may prefer not to try to constrain it further. This is because the various constraints that firms impose on employees (or, more generally, that contracting partners impose on each other) to curb destructive entrepreneurship may have the unwanted side effect that productive entrepreneurship is stifled (see Kirzner, 1985). More generally, imposing (too many) constraints on employees may reduce their propensity to create or discover new attributes of productive assets within the limits set by the business plan.

In this context, the employment relation and asset ownership are important because they give owner-entrepreneurs the rights and the ability to define formal and informal contractual constraints, that is, to choose their own preferred tradeoffs. Ownership by conferring authority allows the employer-entrepreneur to establish his preferred organizational structure — and therefore a certain combination of productive and destructive entrepreneurship — at lowest cost. This function of ownership is particularly important in a dynamic world (Schumpeter, 1911; Kirzner, 1973; Littlechild, 1986; D'Aveni, 1994), where the tradeoffs between productive and destructive entrepreneurship inside the firm are likely to change as the entrepreneur-owner revises his judgment.

### ***3.3. An Example***

Consider a relation between two actors, Jack and Jill. Cooperation between Jack and Jill generates gains from trade because their services are complementary. Each can exercise either original or derived judgment. Assume that the relation is an employment relation and that it involves the use of an asset. The relation is only productive if the asset is used (cf. our earlier remarks on judgment and asset ownership). This asset has multiple attributes (Barzel, 1997), that is, multiple functions, uses, and characteristics. Given Knightian ignorance and uncertainty, Jack and Jill do

not know all relevant present and future attributes of the asset. Instead, attributes must be discovered, over time, as the asset is deployed in production. The relation can be organized so that Jack is employer and Jill employee, or *vice versa*. The asset may be owned by Jack or by Jill. In this mini-economy (cf. Holmström, 1999), what allocation of ownership and assignment of roles of employer and employee maximizes value?

The employer exercises original judgment by conceiving and implementing a business plan. The employee exercises derived judgment in executing all or elements of that plan. The employer puts the plan in place by instructing and monitoring the employee in accordance with the plan; for example, by monitoring whether the employee maintains the value of the business plan by keeping the required quality levels of the product or service, physical assets, suppliers, etc. The employer not only forms original judgment, but also revises the business plan in the course of the relation as he discovers new uses of the assets in the project. As the employee is also equipped with entrepreneurial abilities; (s)he may discover hitherto undiscovered attributes of the asset in the relation. Some of these discoveries will add to the value of the business plan, either by adding elements to the plan or increasing the effectiveness of the implementation of the plan. For example, in a restaurant chain, the discovery by a local manager of a new dish may add value to the overall chain.

The employment relation is constrained in several dimensions. There are limits to what the employee can do, as well as when, how, with whom, etc. In other words, the decision (property) rights held by employee are circumscribed by the employer (cf. Jones, 1983). The number, scope, and character of such constraints are choice variables (imposing them on the employee obviously requires bargaining power; we deal with this later). The employer may issue more or less detailed instructions. At one end of the spectrum, the employer instructs the employee about everything; no scope is left for derived judgment. At the other end, the employee has very considerable discretion; he has virtually full scope for exercising his derived judgment. Here we use the terminology that the relation can be made more or less “incomplete.”<sup>9</sup> Less complete relations are those that give the employee more discretion. To abstract from enforcement issues

---

<sup>9</sup> As described above, we have in mind a broader notion of “completeness” than what is found in modern contract theory.

(which are well treated in the modern economic theory of the firm) we assume that all the constraints that the employer specifies can be costlessly enforced, once implemented. What may require bargaining power, however, is the implementation of the employer's preferred constraints.

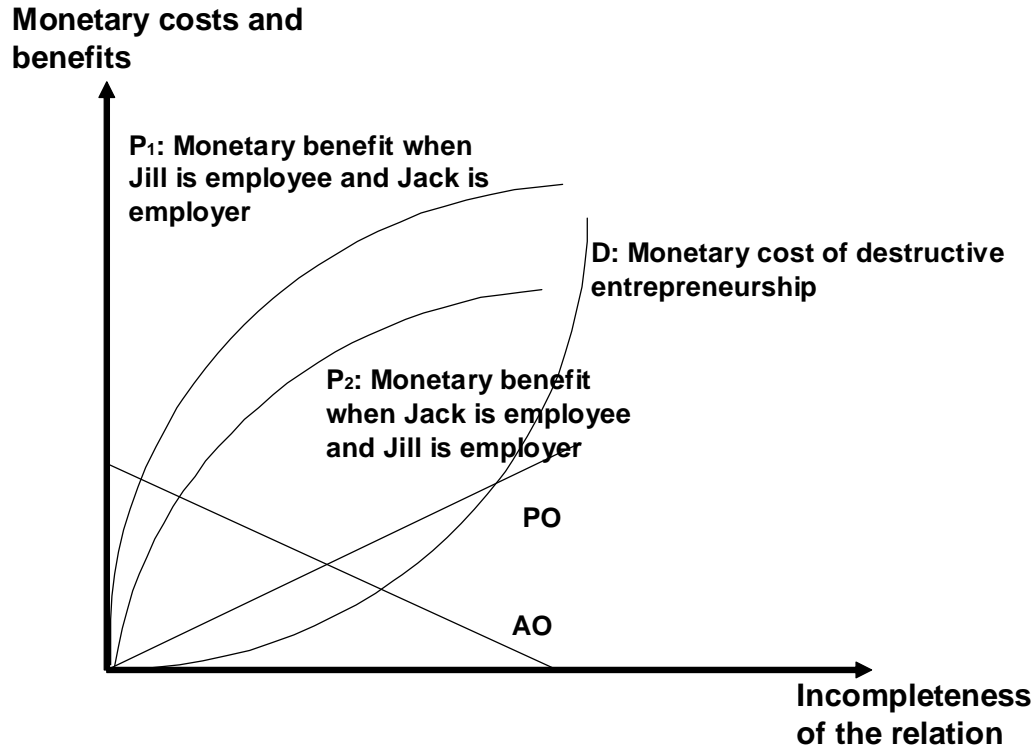
### ***3.4. Value Creation as a Function of Entrepreneurship***

As suggested above, there are costs as well as benefits associated with the relaxation of employment constraints, and, hence, an optimum level of incompleteness that is larger than zero. The diagram depicted in Figure 1 maps Jack and Jill's expectations (we assume these coincide) with respect to the effect on firm value of the employee's productive and destructive proxy entrepreneurship as functions of the incompleteness of the relation when combined with the employer's original judgment, as embodied in the business concept. The tradeoff may be regulated by means of the constraints that are placed on the employee, for example, by determining the budgets to which employees have access (Jensen and Meckling 1992), the activities they can engage in (Holmström, 1989), the people with whom they can work (Holmström and Milgrom 1990), the type of equipment to which they have access, and how they are allowed to operate that equipment (Barzel 1997).<sup>10</sup> Such specifications of decision rights are simultaneously specifications of incompleteness. To simplify, one may think of "the degree of incompleteness" in terms of the time that the employee is allowed to use corporate resources (including their own work time) to conduct "research," that is, activities that are not directly prescribed by the employer-owner, as in the above example of 3M allowing their research personnel very considerable discretion.

---

<sup>10</sup> For example, regulating with whom an employee is allowed to interact clearly influences destructive as well as productive entrepreneurship; on the one hand, it may lead to destructive collusion among agents (as in Holmström and Milgrom, 1990), on the other hand it may lead to the generation of new ideas as the TQM literature emphasizes (Jensen and Wruck, 1994).

**Figure 1:** *Monetary Surplus as a Function of Entrepreneurship*



The P-curve then shows the benefits that may result from such *productive* proxy entrepreneurship as a function of the free time the agent is given. The P-curve thus maps those new discoveries of the employee that when implemented complements the employer's original judgment. The claim is that, as the employee is given more freedom, there is a greater probability that he will discover more beneficial attributes of the productive asset he operates. For example, the probability increases that he may discover new ways of making the asset more effective or new markets to which the asset's services may be deployed. The relation between total benefits and more free time is a strictly concave one. The decreasing marginal returns from new discoveries may be caused by the increasing difficulties of implementing the new discoveries, given that the employer and the employee are constrained in terms of the time that is available for productive

activities. Alternatively, the employee's attention is more focused on making valuable discoveries when he has less free time than when he has more.

Because of differential entrepreneurial capabilities, and the complementarities between Jack and Jill's judgments, it matters for the joint monetary surplus from the relation who assumes the role of employer the principal and who is the agent (and as we argue later, who owns the asset). As drawn in the figure, joint monetary surplus is higher when Jill is employee and Jack is employer.

However, there are also costs to giving the employee more free time for discovery, namely destructive entrepreneurial activities. The D-curve shows the costs from *destructive* proxy entrepreneurship as a function of the free time the employee is given.<sup>11</sup> The claim is that as the employee is given more freedom, there is a greater probability that he will discover new ways of destroying value. For example, the probability increases that he may discover new ways of mis-using equipment, engaging in wasteful new projects, etc. Thus, with increased discretion over the multi-attribute asset, the employee will discover more new ways of controlling attributes, which increases the employee's own benefit, but reduces expected joint surplus.

### ***3.5. The Parties' Preferred Constraints***

Although the different degrees of incompleteness represented differences in created value for the different teams (i.e., {Jack as employer, Jill as employee}, {Jill as employer, Jack as employee}), we cannot identify the preferred points of the parties until we have taken full account of their costs and benefits, that is, their opportunity costs and the way in which they share the joint monetary surplus from the relation.

With respect to the *employee*, we assume that she realizes relationship-specific private benefits (i.e., a non-transferable utility) of engaging in entrepreneurial activities and that this provides

---

<sup>11</sup> Of course, one may not envision only different P-curves but also different D-curves.



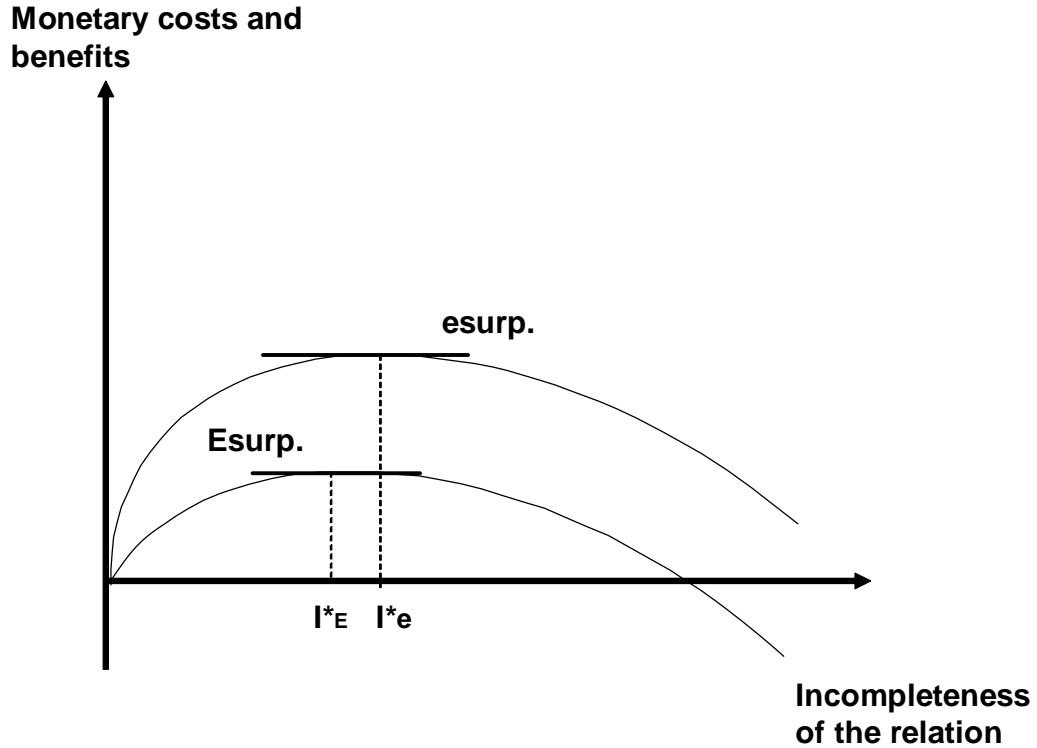
her sufficient motivation.<sup>12</sup> Because of these benefits, the employee suffers opportunity costs of being constrained.

The AO curve in figure 1, assumed to be linear, represents the employee's opportunity costs of being constrained. These costs are inversely related to the degree of incompleteness. The employer suffers opportunity costs (the PO curve) of letting the employee exercise judgment by spending work time and other corporate resources on activities that may lead to discovery, because such resources could have been spent on routine activities. We assume that these costs are a linear function of the time given to the employee. Both parties share the monetary joint surplus in some proportion. We can assume, as is conventional, that they share 50:50. The employee's total benefits are thus the sum of her share of the joint surplus plus her private benefits, while the employer's net benefits are simply his share of the surplus minus his opportunity costs. Given the way these curves have been drawn, the team that maximizes net created value (monetary) is the one where Jack is employer and Jill is employee.

---

<sup>12</sup> Aghion and Tirole (1997) make a similar, clearly heroic, assumption. As justification, one may point to the fact that the ability of more or less freely dispose over a certain percentage of one's working hours has become an increasingly part of many employment packages, particularly in "dynamic" industries (IT, biotech, consulting, etc.).

**Figure 2: The Parties' Preferred Degree of Incompleteness**



Given the specification of costs (including opportunity costs) and benefits in Figure 1, Figure 2 shows the preferred constraints of the parties. Figure 2 depicts a curve, *Esurp.*, which represents the employer's share of the created value (minus his opportunity costs)<sup>13</sup> and a curve, *esurp.* which represents the employee's share of the surplus plus her private benefits.<sup>14</sup> Given this, the employer's preferred degree of contractual incompleteness is given by  $I^*_E$  and the employee's is given by  $I^*_e$ . Thus, the parties disagree about how many constraints should be imposed upon the employee! The parties may strike any contract between  $I^*_E$  and  $I^*_e$  (this will always be beneficial compared to a situation of no contract). However, given the assumption that a

<sup>13</sup> More precisely, the employer receives  $Esurp. = \frac{1}{2} (P-D)$ .

<sup>14</sup> More precisely, the employee receives  $esurp. = \frac{1}{2} (P-D) + (k-AO)$ , where  $k$  represents the value of  $AO$  when incompleteness is zero.

part of the employee's total benefits and the employer's costs are private, bargaining is likely to be costly and dissipate value.

In fact, as the example is constructed, no sharing rule can generate agreement on the preferred degree of contractual incompleteness, and any sharing rule will therefore cause some inefficiency. Moreover, according to Figure 2, it is more lucrative to be an employee than to be a principal, which may imply that the party who holds comparative advantages in forming original judgment (i.e., Jack in figure 1) may prefer to be an employee with the party who is comparatively disadvantaged in forming original judgment as a employer (i.e., Jill in figure 1). This is clearly inefficient: As the example has been constructed, the team in which Jack is employer and Jill is employee is more efficient (it creates more value) than the other team.

In a zero transaction cost world, this inefficiency may be handled through the appropriate choices of sharing rules, bribes, and contractual constraints (Coase, 1960). However, bargaining costs may swamp the benefits from such arrangements (Wernerfelt, 1997). Given bargaining costs, it matters who sets sharing rules and contractual constraints. If, for example, the employee can set the constraints but cannot bribe the principal, not even 100 % residual claimancy will make it attractive to become employer, since in this case, the agent will prefer total absence of constraints, which in turn means that joint monetary surplus will be zero (and the employer still has to suffer the opportunity costs of the employee's entrepreneurial activities). The question then is how these inefficiencies are minimized, that is, choosing the efficient team (i.e, team {Jack is employer, Jill is employee} or {Jill is employer, Jack is employee}), sharing rules and contractual constraints. We argue that ownership to the asset in the relation plays a key role with respect to all three issues.

## 4. Asset Ownership

### 4.1. *Ownership Facilitates Entrepreneurship*

Ownership plays a key role in easing entrepreneurship and exchange (i.e., minimizing costs of dissipation). Asset ownership confers a *bundle* of rights, including rights to hitherto unknown attributes of the relevant asset. Ownership reduces information, communication, and contracting costs relative to a situation in which it was necessary to contract over all these rights. Thus, own-

ership eases the implementation of entrepreneurial judgment in a productive venture by allowing entrepreneurs to acquire, in one transaction, a bundle of rights to attributes (i.e., a distinct asset). This means that the parties do not have to engage in costly bargaining over many rights to single attributes (Barzel, 1997). The dissipation of value is at a minimum. Moreover, ownership also facilitates the use of entrepreneurial judgment in a productive venture by conferring a legally recognized right to define contractual constraints (Coase, 1937; Williamson, 1996).

Recall now the possible inefficiency caused by the individual with comparative advantages in forming original judgment (here, Jack) wishing to assume the role of employee and being directed by the comparatively disadvantaged individual (here, Jill) because this would give him higher returns. This inefficiency may be avoided if somehow Jack can be made just as well off as employer in the efficient team as employee in the inefficient team. Simply adjusting the sharing rule with respect to the monetary surplus to compensate Jack will not do: If Jack receives, for example, 100% of the surplus, this will not compensate him, if Jill keeps the right to set the constraints. In fact, the greater the employer's share in the surplus, the greater will be the employee's incentive to choose constraints that maximizes his own private benefits at the cost of the joint monetary surplus.

The power to set constraints is conferred by asset ownership. Thus, if the employer owns the asset, he can set constraints in such a way that he can influence the size of the surplus that will be shared among the parties, and in this way make sure that he will be actually be compensated for assuming the role of principal in the efficient team. In other words, ownership has the function in our example of minimizing the dissipation of value — it means that Jack and Jill do not have to engage in costly bargaining — and of selecting the efficient team, that is, the one that best utilizes the parties' comparative advantages in forming original and derived judgment. To put it in a compact manner, ownership is a means of implementing the principal's preferred degree of incompleteness in a low-cost way.

Although we have presented our arguments in the context of a static setting, the above functions of ownership are particularly important in a dynamic context, because in such a context an ongoing process of entrepreneurial creation and discovery will require that constraints in a rela-

tion are redefined. Thus, in terms of Figure 1, the slopes of the D and the P curves are likely to change over time as a result of entrepreneurial activities on the part of both the agent and the principal. The power conferred by ownership allows the principal to adjust the level of contractual constraints to ensure that he has incentives to maintain the role of principal in the efficient team, realizing comparative advantages of entrepreneurship. Indeed, as noted below, the notion that contractual constraints define the scope of entrepreneurship, rather than simply allowing agents to choose the values of particular variables with known distributions, is an inherently dynamic, forward-looking concept of organizational design.

#### **4.2. Other Applications**

Our theory of ownership as a means of implementing a preferred set of constraints in a productive relation, and therefore a certain combination of productive and destructive entrepreneurship, has application beyond the determination of who should be the owner. It can also cast light over the more general issue of why a certain agent owns a certain asset, independent of his relationships with other agents. The theory of ownership presented in Hart (1995) revolves around the holdup problem: One should own those assets that are complementary to one's (non-contractible) human capital investments, since this increases (*ex post*) bargaining power and therefore the rents that may be expected from investments. This seems to be a less-than-general explanation: People own many things, the ownership of which cannot be explained by holdup considerations (e.g., standard kitchen utensils in a household).

Another common idea is that those who discover new knowledge have an incentive to use it themselves because of the transaction costs of knowledge transfer. Given this, there is a general tendency for ownership of complementary assets to move to the knowledge source (rather than the other around), because knowledge is harder to trade than most other resources (Foss, 1993; Casson, 1997). The problem with this explanation is that it does not allow to distinguish analytically between ownership and rental agreements. Our theory can do this, however.

For example, suppose that a car rental company put very few constraints in the contracts they offer renters, so that the latter could use the company's cars for the purpose of running a taxi business or a truck operation. Thus, the company does not much constrain productive *and* destructive

proxy-entrepreneurship. In reality, however, a car rental company will normally prefer to circumscribe in a relatively detailed way the possible productive and destructive entrepreneurship that the renter can engage in. For example, usually rental cars cannot be used for commercial purposes, among other things because the company fears that the car will not be driven in a proper way, and that this will diminish the demand of other renters for the car's services. Thus, in order to maintain demand and control externalities, the company constrains the use of the car in many ways. However, a renter who wishes to use a rental car for entrepreneurial, commercial purposes is not likely to find the constraints imposed by the car rental company to be optimal. Hence, he may prefer to own the car in order to be able to impose his own preferred way of using the car, that is, he owns the car in order to carry out his own entrepreneurial plans.<sup>15</sup>

## 5. Conclusion

### 5.1. *Contribution to Theory*

In the entrepreneurial judgment approach, the theory of the firm becomes a theory of how the entrepreneur arranges his capital assets, including which combinations of assets he will seek to acquire and which assets he may later divest in an attempt to carry out the commercial experiment that embodies his judgment (Knight, 1921; Casson, 1982; Foss, 1993; Langlois and Cosgel, 1993; Foss and Klein, 2005). The present paper extends this approach by explaining how entrepreneur-owners delegate decision rights to employees and how the employees' exercise of derived judgment is best circumscribed.

In established economic theories of organizational design, delegation is usually analyzed with a principal-agent model. Such models have been exhaustively treated in the literature. A basic implication of this apparatus is that more complete contracts are preferable to less complete contracts. However, if agents are allowed to exercise derived judgment, as in our approach, this conclusion changes. There is a positive level of incompleteness, not because complete contracts

---

<sup>15</sup> Of course, in this situation car rental companies may increase earnings by offering differentiated products, where rental fees and contractual constraints differ for different segments of the market, or new firms may arise to special-purpose segments of the market. However, even those firms that offer cars with fewer or other contractual constraints may be too constraining for some persons, particularly those who (expects that they) are likely to discover yet unimagined activities (i.e., entrepreneurs). They will still want to become owners.

are costly to draft (as in Crocker and Reynolds, 1993), but because complete contracts curb entrepreneurial activities, both productive and destructive. More generally, in the kind of open-ended world envisaged by Knight (1921) as well as Austrian economists (Mises, 1949; Shackle, 1972; O’Driscoll and Rizzo, 1985; Koppl and Minniti, 2003), limiting employee discretion involves more than simply making formal, written contracts more complete. Discretion is constrained but organizational structure, which includes not only formal contracts, but also the complementary elements of informal norms (“corporate culture” and other implicit contracts), official and unofficial means for resolving disputes (Williamson, 1996), and so on. Ownership conveys the right to define key elements of this organizational structure.<sup>16</sup>

Moreover, in contrast to the new property rights approach (Hart, 1995), ownership has broad implications for firm performance. In our approach, the arrangement of property titles affects not only ex ante relationship-specific investments (as in the new property rights approach), but also how the firm will perform through time (original judgment rights should be allocated to the party best able to exercise them); likewise, internal organization affects not only current performance (as in agency theory, mechanism design, etc.), but also dynamics — how derived judgment will be exercised through time. The judgment approach to organizational design is thus inherently dynamic.

## ***5.2. Implications for Future Research***

As already indicated, the approach of this paper is in some important ways different from the mainstream in the economic theory of the firm. Thus, we have sidestepped the issue of motivating the agent by means of explicit incentives by assuming that the agent realized a private benefit from having the freedom to engage in entrepreneurial activities that provide sufficient motivation for him to engage in these activities. This is not because we consider explicit incentives unimportant, but rather because we think the assumption that the agents can be (partly) motivated by being given more influence over their job situation is a realistic one (and a neglected one, too). In-

---

<sup>16</sup> We do not claim that the informal aspects of organizational structure are *completely* controlled, or “designed,” by owners. We certainly recognize that, for example, corporate culture can grow and evolve organically, that there is an element of “spontaneous order” within the firm. But we maintain that formal constraints, established and revised by owners, are the ultimate drivers of organizational form.

corporating explicit incentives into the analysis should provide additional insight into optimal organizational design, however.

Our approach also suggests that existing studies of contractual completeness, by focusing narrowly on the presence or absence of certain clauses in formal, written contracts, may not adequately capture the actual discretion possessed by parties in economic relationships. Agents may have substantial rights to exercise derived judgment even when they are subject to strong, formal contractual restrictions. This is because under Knightian uncertainty, the contracting space is always open-ended, so that new margins may be created or discovered over which agents may optimize their gains.<sup>17</sup> To give our approach empirical content, however, it is necessary to specify some observable proxies for derived judgment. It is unclear how such proxies could be identified in a large sample of firms, suggesting that case studies and quantitative analysis based on surveys of employee perceptions are necessary.

Conceiving of owners as entrepreneurs has further implications for the economic theory of the firm. Our analysis has focused on the judgment rights delegated to employees and the importance of stimulating productive proxy-entrepreneurship. This does not imply, however, that we regard the entrepreneur-owner's original judgment rights as purely formal and symbolic. On the contrary, we view owners — even corporate shareholders — as critical decision makers, not simply passive providers of capital.<sup>18</sup> As such, their behavior belongs at the forefront of research on the economics of organization. For example, if owners are entrepreneurs, then the firm should be viewed not as a production process, a stock of knowledge, or a governance structure, but as an *investment*. The firm-as-investment literature (Gabor and Pearce, 1952, 1958; Vickers, 1970, 1987; Moroney, 1972; Klein, 1999) challenges several aspects of conventional micro-economics, such as the claim that managers should expand output to the point where marginal revenue equals marginal cost, rather than the point where the return on the last dollar of money capital is

---

<sup>17</sup> See Foss and Foss (2000) for a discussion of how this heuristic contrasts with the conventional modeling approach in contract theory. Of course, in actual modeling, contracting spaces are somehow closed, because of the immense mathematical complexities of working with open spaces. Foss and Foss invoke the notion of an open contracting space as a feature of the interpretation and application of the model.

<sup>18</sup> These claims of course apply *a fortiori* to large blockholders, institutional investors, venture capitalists or angel investors in venture-backed firms, and other “active” investors or investment groups.



just equal to the opportunity cost of that last dollar of money capital.<sup>19</sup> The firm-as-investment concept relates closely to an emerging literature on merger as a form of firm-level investment (Bittlingmayer 1996; Andrade and Stafford 2004).

Finally, we note some implications of our perspective for ongoing work in the tradition of Austrian economics. Much of the contemporary Austrian literature focuses on the organic, “spontaneous” nature of market exchange, the distribution of tacit knowledge (Hayek, 1945), and the failure of top-down, central planning (Mises, 1920). However, in our view, the emphasis on “market” over “hierarchy” (to use Williamsonian terms) has resulted in a lack of attention to organizations, the ubiquitous, central features of all modern economies (Simon, 1990).<sup>20</sup> In Foss’s (2001) terminology, even in “Hayekian settings” there is a role for “Misesian ownership” and “Coasian authority.” We hope the analysis presented in the present paper encourages further research in the Knightian and Austrian traditions on the functions of ownership, authority, and delegation within firms and other organizations.

---

<sup>19</sup> If the firm is earning positive net returns at its current level of output, instead of increasing output until marginal net returns fall to zero, the firm could simply take those returns and employ them elsewhere, either to set up a new firm in the same industry or to diversify into a new industry (Gabor and Pearce 1952: 253). The efficient scale of production is determined by outside investment opportunities, not simply the marginal returns from producing a single output.

<sup>20</sup> An obvious exception is Mises (1944).

## REFERENCES

- Alchian, Armen A. and Harold Demsetz. 1972. "Production, Information Costs, and Economic Organization," in Armen A. Alchian. 1977. *Economic Forces at Work*. Indianapolis: Liberty Press.
- Aldrich, Howard E., and Gabriele Wiedenmayer. 1993. "From Traits to Rates: An Ecological Perspective on Organizational Foundings," in Jerome Katz and Robert Brockhaus, eds., *Advances in Entrepreneurship, Firm Emergence, and Growth*. Greenwich, Conn.: JAI Press, pp. 145–95.
- Aghion, Philippe and Jean Tirole. 1997. "Formal and Real Authority in Organization," *Journal of Political Economy* 105: 1-29.
- Alchian, Armen A. 1965. "Some Economics of Property Rights," in idem. 1977. *Economic Forces at Work*, Indianapolis: Liberty Press.
- Andrade, Gregor, and Erik Stafford. 2004. "Investigating the Economic Role of Mergers," *Journal of Corporate Finance* 10: 1-36.
- Barzel, Yoram. 1987. "The Entrepreneur's Reward for Self-Policing," *Economic Inquiry* 25: 103-116.
- Barzel, Yoram. 1997. *Economic Analysis of Property Rights*, 2nd ed., Cambridge: Cambridge University Press.
- Baumol, William J. 1990. "Entrepreneurship: Productive, Unproductive and Destructive," *Journal of Political Economy* 98: 893-919.
- Begley, Thomas, and David Boyd. 1987. "Psychological Characteristics Associated with Performance in Entrepreneurial Firms and Smaller Businesses," *Journal of Business Venturing* 2: 79–93
- Bittlingmayer, George. 1996. "Merger as a Form of Investment," *Kyklos* 49: 127–53.
- Cantillon, Richard. 1755. *Essai sur la nature de commerce en général*. Henry Higgs, ed. London: Macmillan, 1931.
- Casson, Mark C. 1982. *The Entrepreneur: An Economic Theory*. Oxford: Martin Robertson, 2nd. ed. Edward Elgar, 1999
- Casson, Mark C. 1993. "Entrepreneurship," in David H. Henderson, ed., *The Fortune Encyclopedia of Economics*. New York: Warner Books.
- Casson, Mark. 1997. *Information and Organization*. Oxford: Oxford University Press.
- Chandler, G. N., and E. Jansen, E. 1992. "The Founder's Self-Assessed Competence and Venture Performance," *Journal of Business Venturing* 7: 223–36.
- Coase, Ronald H. 1937. "The Nature of the Firm," in Nicolai J. Foss, ed. 1999. *The Theory of the Firm: Critical Perspectives in Business and Management*, Vol II. London: Routledge.
- Coase, Ronald H. 1960. "The Problem of Social Cost," in idem. 1988. *The Firm, the Market and the State*. Chicago: University of Chicago Press.

- Crocker, Keith J., and Scott E. Masten. 1991. "Pretia Ex Machina? Prices and Process in Long-Term Contracts," *Journal of Law and Economics* 24: 69–99.
- Crocker, Keith J. and Kenneth J. Reynolds. 1993. "The Efficiency of Incomplete Contracts: An Empirical Analysis of Engine Air Force Procurement," *Rand Journal of Economics* 24: 126–146.
- D'Aveni, R. A. 1994. *Hypercompetition: Managing the Dynamics of Strategic Maneuvering*. New York: Free Press
- Day, Jonathan and Jim Wendler 1998. "The New Economics of Organization," *The McKinsey Quarterly*, no. 1: 4–18.
- Demsetz, Harold. 1964. "The Exchange and Enforcement of Property Rights," in idem. 1988. *Ownership, Control, and the Firm*. Oxford: Basil Blackwell.
- Demsetz, Harold. 1988. "Profit as a Functional Return: Reconsidering Knight's Views," in idem. 1988. *Ownership, Control and the Firm. The Organization of Economic Activity, vol. 1*. Oxford and New York: Blackwell.
- Fama, Eugene F. and Michael C. Jensen. 1983. "Separation of Ownership and Control," *Journal of Law and Economics* 26: 301–326.
- Foss, Kirsten and Nicolai J. Foss. 2000. "Theoretical Isolation in Contract Theory: Suppressing Margins and Entrepreneurship," *Journal of Economic Methodology* 7: 313–339.
- Foss, Nicolai J. 1993. "Theories of the Firm: Contractual and Competence Perspectives," *Journal of Evolutionary Economics* 3: 127–144.
- Foss, Nicolai J. 2001. "Misesian Ownership and Coasian Authority in Hayekian Settings: The Case of the Knowledge Economy," *Quarterly Journal of Austrian Economics* 4: 3–24.
- Foss, Nicolai J. 2003. "Selective Intervention and Internal Hybrids: Interpreting and Learning from the Rise and Decline of the Oticon Spaghetti Organization." *Organization Science* 14: 331–349.
- Foss, Nicolai J. and Peter G. Klein. 2005. "Entrepreneurship and the Economic Theory of the Firm: Any Gains from Trade?" In Rajshree Agarwal, Sharon A. Alvarez, and Olav Sorenson, eds., *Handbook of Entrepreneurship: Disciplinary Perspectives*. Norwell, Mass: Kluwer.
- Gabor, André, and Ivor F. Pearce. 1952. "A New Approach to the Theory of the Firm," *Oxford Economic Papers* 4: 252–65.
- Gabor, André, and Ivor F. Pearce. 1958. "The Place of Money Capital in the Theory of Production," *Quarterly Journal of Economics* 72: 537–57.
- Gagné, Marylène and Edward L. Deci. 2005. "Self-Determination Theory and Work Motivation," *Journal of Organizational Behavior* 26: 331–362.
- Gifford, Sharon. 1992. "Allocation of Entrepreneurial Attention," *Journal of Economic Behavior and Organization* 19: 265–284.

- Gifford, Sharon. 1999. "Limited Attention and the Optimal Incompleteness of Contracts," *Journal of Law, Economics and Organization* 15: 468-486.
- Hart, Oliver. 1995. *Firms, Contracts and Financial Structure*. Oxford: Clarendon Press.
- Hayek, Friedrich A. von. 1945. "The Use of Knowledge in Society," in idem. 1948. *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hill, K.G. and T. M. Amabile. 1993. "A Social-Psychological Perspective on Creativity: Intrinsic Motivation and Creativity in the Classroom and Workplace," in S.G. Isaksen, M.C. Murdoch, R.L. Firestien, and D.J. Treffinger. 1993. *Understanding and Recognizing Creativity*. Norwood, NJ: Ablex.
- Holmström, Bengt. 1979. "Moral Hazard and Observability," *Bell Journal of Economics* 10: 74-91.
- Holmström, Bengt. 1989. "Agency Costs and Innovation," *Journal of Economic Behavior and Organization* 12: 305-27.
- Holmström, Bengt. 1999. "The Firm as a Subeconomy," *Journal of Law, Economics and Organization* 15: 74-102.
- Holmström, Bengt and Paul Milgrom. 1990. "Regulating Trade Among Agents," *Journal of Institutional and Theoretical Economics* 146: 85-105.
- Holmström, Bengt and Paul Milgrom. 1991. "Multitask Principal-Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design," *Journal of Law, Economics, and Organization* 7: 24-52.
- Hood, J. N., and J. E. Young. 1993. "Entrepreneurship's Area's of Development: A Survey of Top Executives in Successful Firms," *Journal of Business Venturing* 8: 115-35.
- Jensen, Michael C., and William Meckling. 1976. "Theory of the Firm: Managerial Behavior, Agency Costs, and Capital Structure," *Journal of Financial Economics* 3:305-60.
- Jensen, Michael C. and William Meckling. 1992. "Specific and General Knowledge and Organizational Structure," in Lars Werin and Hans Wijkander, eds. *Contract Economics*. Oxford: Basil Blackwell.
- Jensen, Michael C. and Karen Wruck. 1994. "Science, Specific Knowledge and Total Quality Management," *Journal of Accounting and Economics* 18: 247-87.
- Kim, J. and J. T. Mahoney 2005. "Property rights theory, transaction costs theory and agency theory: An organizational economics approach to strategic management," *Managerial and Decision Economics* 26: 223-242.
- Kirzner, Israel M. 1973. *Entrepreneurship and Competition*. Chicago: University of Chicago Press.
- Kirzner, Israel M. 1979. *Perception, Opportunity and Profit: Studies in the Theory of Entrepreneurship*, Chicago and London: University of Chicago Press, 1983 (reprint edition).

- Kirzner, Israel M. 1985. "The Perils of Regulation," in idem. 1985. *Discovery and the Capitalist Process*. Chicago: University of Chicago Press.
- Kirzner, Israel M. 1997. "Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach," *Journal of Economic Literature* 35: 60-85.
- Klein, Peter G. 1996. "Economic Calculation and the Limits of Organization," *Review of Austrian Economics* 9: 3-28.
- Klein, Peter G. 1999. "Entrepreneurship and Corporate Governance," *Quarterly Journal of Austrian Economics* 2: 19-42.
- Klein, Peter G. and Sandra Klein. 2000. "Do Entrepreneurs Make Predictable Mistakes: Evidence From Corporate Divestitures," *Manuscript*.
- Knight, Frank H. 1921. *Risk, Uncertainty, and Profit*. New York: August M. Kelley.
- Koppl, Roger and Maria Minniti. 2003. "Market Processes and Entrepreneurial Studies," in Zoltan Acs and David B. Audretsch, ed. *Handbook of Entrepreneurial Research*, Boston: Kluwer.
- Langlois, Richard N. and Metin Cosgel. 1993. "Frank Knight on Risk, Uncertainty, and the Firm: A New Interpretation," *Economic Inquiry* 31: 456-65.
- Littlechild, Stephen. 1986. "Three Types of Market Process," in Richard N. Langlois, ed. *Economics as a Process: Essays in the New Institutional Economics*. Cambridge: Cambridge University Press.
- Loasby, Brian J. 1999. *Knowledge, Institutions, and Evolution in Economics*. London: Routledge.
- Lumpkin, G.T. and G. G. Dess. 1996. "Clarifying the Entrepreneurial Orientation Construct and Linking it to Performance," *Academy of Management Review* 21: 135-172.
- Minkler, Alanson P. 1992. "Why Firms Franchise: A Search Cost Theory," *Journal of Institutional and Theoretical Economics* 148: 240-259.
- Minkler, Alanson P. 1993. "Knowledge and Internal Organization," *Journal of Economic Behavior and Organization* 21: 17-30.
- Mises, Ludwig von. 1944. *Bureaucracy*. New Haven: Yale University Press.
- Mises, Ludwig von. 1949. *Human Action*. New Haven: Yale University Press.
- Moroney, J. R. 1972. "The Current State of Money and Production Theory," *American Economic Review*: 335-43.
- O'Driscoll, Gerald P. and Mario Rizzo. 1985. *The Economics of Time and Ignorance*. Oxford: Basil Blackwell.
- Osterloh, Margit and Bruno Frey. 2000. "Motivation, Knowledge Transfer and Organizational Form," *Organization Science* 11: 538-550.

- Rothbard, Murray N. 1962. *Man, Economy, and State: A Treatise on Economic Principles*. Princeton, N.J.: Van Nostrand
- Saussier, Stéphane. 2000. "Transaction Costs and Contractual Incompleteness: The Case of Electricity de France," *Journal of Economic Behavior and Organization* 42: 189–206.
- Schumpeter, Joseph A. 1911. *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest, and the Business Cycle*. Translated by Redvers Opie. Cambridge, Mass., Harvard University Press, 1934.
- Shackle, George L.S. 1972. *Epistemics and Economics*. Cambridge: Cambridge University Press.
- Shane, Scott. 2003. *A General Theory of Entrepreneurship*. Cheltenham: Edward Elgar.
- Vickers, Douglas. 1970. "The Cost of Capital and the Structure of the Firm," *Journal of Finance* 25: 1061-80.
- Vickers, Douglas. 1987. *Money Capital in the Theory of the Firm: A Preliminary Analysis*. Cambridge: Cambridge University Press.
- Wernerfelt, Birger. 1997. "On the Nature and Scope of the Firm: A Adjustment Cost Theory," *Journal of Business* 70: 489-514.
- Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: Free Press.
- Williamson, Oliver E. 1996. *The Mechanisms of Governance*. Oxford: Oxford University Press.
- Witt, Ulrich. 1998a. "Imagination and Leadership: the Neglected Dimension of an Evolutionary Theory of the Firm," *Journal of Economic Behavior and Organization* 35: 161-77.
- Witt, Ulrich. 1998b. "Do Entrepreneurs Need Firms?" *Review of Austrian Economics* 11: 99-109.
- Yonekura, S. and M.J. Lynskey, eds. 2002. *Entrepreneurship and Organization*. Oxford: Oxford University.